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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,879	11/05/2003	Amar K. Mohanty	MSU 4.1-617	6700

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EXAMINER

STAICOVICI, STEFAN

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/701,879	Applicant(s) MOHANTY ET AL.	
	Examiner Stefan Staicovici	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 23-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-29 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/05/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/05/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-22, drawn to a molding process, classified in class 264, subclass 211.
 - II. Claims 23-29, drawn to a molding composition, classified in class 524, subclass 35.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions Group I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process such as, polymerizing a lactam in a mixture including an alkaline anionic catalyst, an ionic activator, a metal salt and filler material.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Mr. Ian McLeoud on January 8, 2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-22. Affirmation of this election must be made by applicant in replying to this Office action. Claims 23-29

withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

6. The abstract of the disclosure is objected to because the abstract should be generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-5 and 7-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sears et al.* (US 2002/0000683 A1) in view of *Cobb et al.* (US Patent No. 6,100,320).

Sears *et al.* (US 2002/0000683 A1) teach the basic claimed process for making a fiber reinforced thermoplastic polymer composition including, melt-blending (melt-forming) a thermoplastic material (nylon) having a first melting temperature with pulp (cellulosic) fibers at a second temperature that is below the first temperature by about 10-50 °F (see paragraphs [0035]-[0044]). It is submitted that nylon has a melting temperature of about 200 °C.

Regarding claims 1, 5, 10, 14, 18 and 21, Sears *et al.* (US 2002/0000683 A1) do not teach adding a metal salt to lower the first temperature to the second temperature to form a reaction product between the thermoplastic material and the metallic salt. Cobb *et al.* ('320) teach a process for making a polymer composition including, adding a zinc salt (metal salt)(zinc chloride) to a thermoplastic material in order to reduce the melting temperature of the thermoplastic material (see Abstract and col. 2, lines 55-62). Therefore, it would have been obvious for one of ordinary skill in the art to have added zinc salt as taught by Cobb *et al.* ('320) to the thermoplastic blend obtained by the process of Sears *et al.* (US 2002/0000683 A1) because, Cobb *et al.* ('320) teaches that a zinc salt allows for a reduction in the melting temperature or an increase in the processing speed, hence providing for increased productivity of the thermoplastic blend material and also a reduction of melt fracture, hence providing for an improved molded product.

In regard to claims 2-3, 11 and 20, Sears *et al.* (US 2002/0000683 A1) teach pulp (cellulosic) fibers (see paragraph [0037]) and wood fibers (see paragraph [0020]).

Specifically regarding claims 4, 13, and 19, Sears *et al.* (US 2002/0000683 A1) teach a

nylon thermoplastic material (see paragraph [0055]).

Regarding claims 7-8 and 15-16, Sears *et al.* (US 2002/0000683 A1) teach extrusion and injection molding (see paragraphs [0043] and [0046]).

In regard to claims 9, 17, and 22, Sears *et al.* (US 2002/0000683 A1) teach glass fibers (see paragraph [0057]).

Specifically regarding claim 12, Sears *et al.* (US 2002/0000683 A1) teach a compatibilizer (see paragraph [0032]).

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sears *et al.* (US 2002/0000683 A1) in view of Cobb *et al.* (US Patent No. 6,100,320) and in further view of Curatolo *et al.* (US Patent No. 4,588,797).

Sears *et al.* (US 2002/0000683 A1) in view of Cobb *et al.* ('320) teach the basic claimed process as described above.

Regarding claim 6, Sears *et al.* (US 2002/0000683 A1) in view of Cobb *et al.* ('320) do not teach a metal halide. Curatolo *et al.* ('797) teach a nylon composition including a lithium halide for lowering the melting temperature. Therefore, it would have been obvious for one of ordinary skill in the art to have used lithium halide as taught by Curatolo *et al.* ('797) as an equivalent alternative to the zinc salt in the process of Sears *et al.* (US 2002/0000683 A1) in view of Cobb *et al.* ('320) because, Curatolo *et al.* ('797) teach that lithium halide reduces the melting temperature of a nylon melt, thereby making lithium halide an equivalent alternative based on availability, cost, ease of operation and increased thermal stability of the nylon during

its melt processing.

10. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sears *et al.* (US 2002/0000683 A1) in view of Curatolo *et al.* (US Patent No. 4,588,797).

Sears *et al.* (US 2002/0000683 A1) teach the basic claimed process for making a fiber reinforced thermoplastic polymer composition including, melt-blending (melt-forming) a thermoplastic material (nylon) having a first melting temperature with pulp (cellulosic) fibers at a second temperature that is below the first temperature by about 10-50 °F (see paragraphs [0035]-[0044]). It is submitted that nylon has a melting temperature of about 200 °C.

Regarding claims 1, 5-6, 10, 14, 18, and 21, Sears *et al.* (US 2002/0000683 A1) do not teach adding a metal salt to lower the first temperature to the second temperature to form a reaction product between the thermoplastic material and the metallic salt. Curatolo *et al.* ('797) teach a nylon composition including a lithium halide (metal salt) for lowering the melting temperature of the nylon material (see Abstract). Therefore, it would have been obvious for one of ordinary skill in the art to have added lithium halide as taught by Curatolo *et al.* ('797) to the thermoplastic blend obtained by the process of Sears *et al.* (US 2002/0000683 A1) because, Curatolo *et al.* ('797) teaches that lithium halide allows for a reduction in the melting temperature, hence providing for increased productivity of the thermoplastic blend material and also it results in a reduction of melt fracture, hence providing for an improved molded product.

In regard to claims 2-3, 11, and 20, Sears *et al.* (US 2002/0000683 A1) teach pulp

(cellulosic) fibers (see paragraph [0037]) and wood fibers (see paragraph [0020]).

Specifically regarding claims 4,13, 19 and 27, Sears *et al.* (US 2002/0000683 A1) teach a nylon thermoplastic material (see paragraph [0055]).

Regarding claims 7-8 and 15-16, Sears *et al.* (US 2002/0000683 A1) teach extrusion and injection molding (see paragraphs [0043] and [0046]).

In regard to claims 9, 17, and 22, Sears *et al.* (US 2002/0000683 A1) teach glass fibers (see paragraph [0057]).

Specifically regarding claim 12, Sears *et al.* (US 2002/0000683 A1) teach a compatibilizer (see paragraph [0032]).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

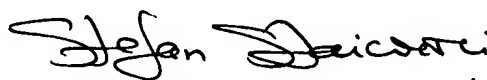
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (571) 272-1208. The examiner can normally be reached on Monday-Friday 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Colaianni, can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1732

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stefan Staicovici, PhD

A handwritten signature in black ink, appearing to read 'Stefan Staicovici', written in a cursive style.

Primary Examiner

1/13/06

AU 1732

January 13, 2006